

AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of the Claims:

1. (Currently Amended) An apparatus for acquisition of a direct-sequence/code division multiple access signal, which acquires a long code from a direct-sequence/code division multiple access control channel signal, in which a common short code[[,]] and the long code are transmitted within one frame, and a group identification code indicating a code group, to which a base station belongs, are combined and transmitted with the common short code comprising:

a long code masking correlation portion for correlating common short codes generated internally and the control channel signal;

a differentially coherent combining portion for deciding whether acquisition of the common short code is achieved or not by multiplying a complex conjugate value of a previous output of the long code masking correlation portion by a present output of the long code masking correlation portion, [[and]] by accumulating the results of multiplication during [[the]] a predetermined time ~~times~~ and by taking an absolute value of the accumulated value;

a code group and frame timing acquisition portion for acquiring the code group and frame timing by correlating each group identification code, which can be generated according to [[the]] a coherence of the common short code output from the differentially coherent combining portion, and the received group identification codes respectively, and by combining each correlation result; and

a long code acquisition portion for acquiring the long code by correlating the long codes belonging to the acquired code group and the received long code respectively.

2. (Original) The apparatus of claim 1, wherein the long code masking correlation portion is a matched filter correlator comprising a plurality of taps whose tap coefficients are the common short codes generated internally.

3. (Currently Amended) The apparatus of claim 2, wherein the differentially coherent ~~combining~~ combining portion comprises:

a complex conjugator for taking the complex conjugate of the output of the matched filter correlator;

a multiplier for multiplying the previous output of the complex conjugator by the present output of the long code masking correlation portion;

an accumulator for accumulating the outputs of the multiplier;

an absolute value calculator for taking the absolute value of the outputs of the accumulator; and

a discriminator for deciding whether acquisition of the common short code is achieved or not from the outputs of the absolute value calculator.

4. (Currently Amended) An apparatus for acquisition for a direct-sequence/code division multiple access signal, which acquires a long code from a direct-sequence/code division multiple access control channel signal, in which a common short code and the long code are transmitted within one frame, and a group identification code indicating a code group, to which a base station belongs, are combined and transmitted with the common short codes comprise:

a long code masking correlation portion for correlating common short codes generated internally and the control channel signal;

a switch for connecting each output of the long code masking correlation portion to output terminals which exist as many as the number of chips of the common short code, and repeating this process;

a ~~differently~~ differentially coherent combining portion for deciding whether acquisition of the common short ~~code codes~~ is achieved or not, by comparing values output from a means ~~wherein the means delays~~ for delaying a value input from the output terminal connected to the switch for a predetermined time, ~~takes~~ for taking a complex conjugate of the delayed value, ~~multiplies~~ for multiplying the complex conjugated value by the value input from the output terminal, ~~accumulates~~ for accumulating the multiplied value for a predetermined ~~time times~~ and takes an absolute value of the accumulated value;

a code group and frame timing acquisition portion for acquiring the code group and frame timing by correlating each group identification code, which can be generated according to ~~[[the]]~~ a coherence of the common short code output form the differentially coherent combining portion, and the received group identification codes respectively, and by combining each correlation result; and

a long code acquisition portion for acquiring the long code by correlating the long codes belonging to the acquired code groups and the received long code respectively.

5. (Original) The apparatus of claim 4, wherein the long code masking correlation portion is a matched filter correlator comprising a plurality of taps whose tap coefficients are the common short codes generated internally.

6. (Currently Amended) The apparatus of claim 4, wherein the differentially coherent combining portion comprises:

a plurality of delays which delay the value ~~inputted~~ input from the output terminal connected to the switch for the duration of the slot;

a plurality of complex conjugators which take the complex conjugate of the outputs of each delayer;

a plurality of multipliers which multiply the output of each complex conjugator by the value inputted from the output terminal;

a plurality of accumulators which accumulate the output of each multiplier;

a plurality of absolute value calculators which take the absolute value of the output of each accumulator; and

a discriminator which decides whether acquisition of the common short code is achieved or not, comparing the outputs of the absolute value calculators.